

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : RICOH CO LTD

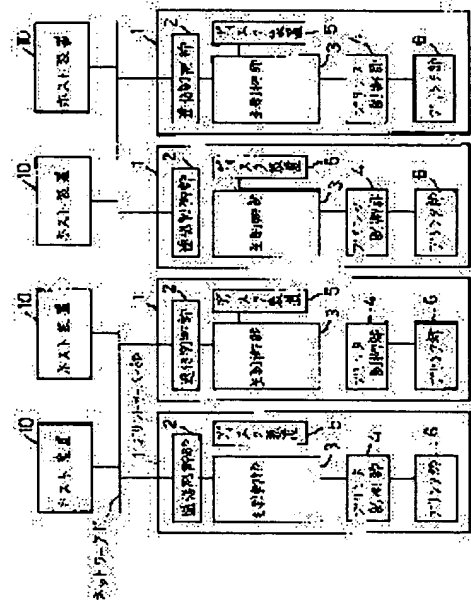
(22)Date of filing : 22.09.1992

(72)Inventor : OOKUBO SHIYUUKO

## (54) PRINT SERVER DEVICE

### (57)Abstract:

**PURPOSE:** To more effectively and more easily use emulation mounted by a print server on a network.  
**CONSTITUTION:** When printing data are sent while designating one of plural print server parts 1 connected through a network 11 to host devices 10, a main control part 3 judges whether the emulation suitable for the printing data is mounted at that print server part 1 or not and when the emulation is not mounted, the other print server part 1 mounted the suitable emulation is retrieved through the network 11. Then, data are prepared at the retrieved print server part 1. These prepared data are transferred to the designated print server part 1 and outputted.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

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**CLAIMS**

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**[Claim(s)]**

[Claim 1] In the print server equipment which was connected to two or more host equipments through the network, and was equipped with the print server section of the plurality which can be shared from said host equipment, respectively It judges whether the suitable emulation for print data is carried in the print server section to which print data are sent from said host equipment. Other print server sections which carry said suitable emulation when not carried are searched. Print server equipment characterized by having the means made to output by the print server section to which data are made to create in the searched print server section, and said print data are sent.

[Claim 2] In the print server equipment which was connected to two or more host equipments through the network, and was equipped with the print server section of the plurality which can be shared from said host equipment, respectively It judges whether each emulation is carried in the print server section to which the print data which two or more emulations mixed from said host equipment are sent. Other print server sections in which said each emulation is carried when not carried are searched. Print server equipment characterized by having the means to which data are made to make compound and output in the print server section to which data are made to create in each searched print server section, and said print data are sent.

[Claim 3] In the print server equipment which was connected to two or more host equipments through the network, and was equipped with the print server section of the plurality which can be shared from said host equipment, respectively When there is much amount of data by which the stack has already been carried out to the print server section to which print data are sent from said host equipment Print server equipment which searches other print server sections in which the suitable emulation for print data is carried, and is characterized by having the means to which data are made to make create and output in the searched print server section.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the print server equipment with which two or more installation of the print servers, such as a compound machine which made the printer or the printer possess other functions on a network, was carried out.

[0002]

[Description of the Prior Art] When two or more print server systems exist on a network conventionally, the user has usually advanced the printing demand to the printer, when the emulation which the printer which it is going to use carries has been recognized.

[0003]

[Problem(s) to be Solved by the Invention] However, in the above-mentioned Prior art, if the class of emulation increases and a network also reaches far and wide like today, it is difficult to recognize the printer on a network, and correspondence of the emulation which it carries one by one.

[0004] The purpose of this invention is to offer the print server equipment which enabled it to use the emulation which the print server carries on a network more effectively and more simply.

[0005]

[Means for Solving the Problem] In the print server equipment which this invention was connected to two or more host equipments through the network, and was equipped with the print server section of the plurality which can be shared from said host equipment, respectively in order to attain the above-mentioned purpose It judges whether the suitable emulation for print data is carried in the print server section to which print data are sent from said host equipment. When not carried, other print server sections which carry said suitable emulation are searched, and it is characterized by having the means made to output by the print server section to which data are made to create in the searched print server section, and said print data are sent.

[0006] Moreover, it judges whether each emulation is carried in the print server section to which the print data which two or more emulations mixed from host equipment are sent in above print server equipment. Other print server sections in which said each emulation is carried when not carried are searched. It is characterized by having the means to which data are made to make compound and output in the print server section to which data are made to create in each searched print server section, and said print data are sent.

[0007] When there is much amount of data by which the stack has already been carried out to the print server section to which print data are sent from host equipment in the print server equipment of further the above, other print server sections in which the suitable emulation for print data is carried are searched, and it is characterized by having the means to which data are made to make create and output in the searched print server section.

[0008]

[Function] When the suitable emulation for print data is not carried in the specified print server section according to the above-mentioned means, the print server section in which the suitable emulation is carried is searched, and data are made to create in the searched print server section. The created data are transmitted to said specified print server section, and are outputted in the specified print server section.

[0009] Moreover, when the print data which two or more emulations which are not carried in the specified print server section mixed are sent, the print server section in which each emulation is carried is searched, and data are made to create in two or more searched print server sections, respectively. Each created data is transmitted to said specified print server section, and compounds and outputs said each data in the specified print server section.

[0010] In the print server section furthermore specified, when there is much stack amount of data, the suitable emulation for print data is carried, and the stack amount of data searches little of other print server section, and the searched print server section creates and outputs data in response to print data.

[0011]

[Example] Hereafter, the example of this invention is explained based on a drawing.

[0012] Drawing 1 is a print server structure-of-a-system Fig. which is one example of this invention, and the print server section 1 of plurality (four were shown by a diagram) is connected with the host equipment 10 of plurality (four were shown by a diagram), such as a workstation, in the communications control section 2 through the network 11.

[0013] In each print server section 1, the print data received in the communications control section 2 are once stored in a disk unit 5 in the main control section 3. When two or more print data are stored in the disk unit 5 possessing the disk for information record, the main control section 3 manages print data on a table so that it can read in the stored sequence. Moreover, the address of the host equipment which is the demand origin of print data, and user ID (identifier) are also stored in this managed table. moreover, print data are in what kind of conditions (under a waiting state and printing etc.) — it is managed on this managed table, and in order to manage the case where transmit print data to other print server sections 1, and they are processed further, and the case where processing is requested from other print server sections 1, and print data are received and processed, respectively, the address of the print server section 1 of the destination and an acceptance place is also stored. [0014] An example of said managed table was shown in Table 1.

[0015]

[Table 1]

印字データの ポインタ	ホスト装置 アドレス	ユーザID	印字データの 状態フラグ	転送先システ ムアドレス	受け入れ先シス テムアドレス
P 1	A 1	U 1	S 1	T 1	R 1
P 2	A 2	U 2	S 2	T 2	R 2
P 3	A 3	U 3	S 3	T 3	R 3
・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・
P n	A n	U n	S n	T n	R n

[0016] It has the field which stores in said main control section 3 ID of the emulation which the printer section 6 in a system carries beforehand. [ the printer control section 4 ] Read [ the main control section 3 / the print data most previously stored among the print data in a disk unit 5 ], section [ printer / 6 ], it begins [ furthermore, / when the print data of a printing waiting state are in a disk unit 5 and the printer section 6 omits printing actuation ] to transmit these print data. And it waits for the completion of printing of these print data, and when there are print data which are in a waiting state next, these print data are read and a transfer is started to the printer section 6.

[0017] The printer control section 4 performs the communication link with the printer section 6, and manages the transfer to the print data to the printer section 6, and the condition of the printer section 6. The printer section 6 is an airline printer which decodes print data and creates an image to a record medium (paper). This printer section 6 has the function to tell error

situations, such as operating state, such as the completion of printing, or a form piece, a paper jam, and failure, to the printer control section 4, printer waiting and during printing. By this example, although this printer section 6 has become some print server systems, it does not contain in a print server system, but an independent configuration is also considered.

[0018] An example of the print data sent to Table 2 from host equipment 10 was shown.

[0019]

[Table 2]

プリントサーバー アドレス	ホスト装置 アドレス	印刷情報 ヘッダ	印刷情報	印刷情報 ヘッダ	印刷情報
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[0020] Print data consist of the print server address, the host device address, a printed information header, and printed information in Table 2. In a printed information header, user ID and ID of the emulation which print data use are contained. For two or more users, such as a workstation, in the case of a machine available to coincidence, host equipment 10 of user ID is for specifying the user who advanced the printing demand within host equipment 10. Printed information is printing image information, such as text, bit image information, and graphics information. A printed information header and printed information are a pair, and print data may consist of two or more printed information headers and printed information (print data treat as a unit all the data to one printing demand which a user publishes).

[0021] Next, the example of operation in the above-mentioned print server system is explained.

[0022] In case print data are stored in a disk unit 5, the main control section 3 judges whether it is the emulation which the printer section 6 in the print server section 1 carries by the emulation ID in the printed information header of print data, and if it is, it will perform the usual processing. If it is not the corresponding emulation, the print server section 1 which has the corresponding emulation is searched through a network 11, and the address is stored. Print data are also transmitted through a network 11 and it memorizes that it is under processing in other print server sections 1 with the pointer of print data, and the status flag of print data.

[0023] On the other hand, in the print server section 1 which received print data, after describing the address of the print server section 1 of an acceptance place on the managed table of the print data of the main control section 3, print data are processed by the printer control section 4. Page information creates by the printer control section 4, and page information is transmitted and outputted to the print server section 1 of an acceptance place through a network 11 immediately after the end.

[0024] Moreover, as soon as page information is finished on each print server section 1 which carried the emulation which processes the main control section 3 by the approach of having divided for every emulation and having mentioned above which uses a series of print data, and corresponds to the print data which two or more emulations mixed, page information is linked in the main control section 3, and it transmits to the printer control section 4 of an acceptance place. This printer control section 4 compounds and outputs all page information.

[0025] Furthermore, if the managed table of print data judges another print data which should be processed by the print server section 1 to be the condition of stocking in large quantities in case print data are stored in a disk unit 5, immediately, through a network 11, the main control section 3 will search other print server sections 1 which do not stock print data in large quantities, and carry the suitable emulation for print data, will transmit print data, and will yield processing.

[0026] In this case, since it is outputted from the printer section other than the printer section which the user specified, a memorandum is issued through the host equipment with which, as for the main control section 3, the user is using this. An example of the message data sent to host equipment was shown in Table 3.

[0027]

[Table 3]

ホスト装置 アドレス	プリントサーバー アドレス	メッセージ情報 ヘッダ	メッセージデータ
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[0028] In addition, decision whether print data are stocked in large quantities can be determined in the amount of the print data memorized by the disk unit 5, or can consider determining with the number of the user who has requested processing etc.

[0029]

[Effect of the Invention] Since the print server equipment of this invention can be outputted in the print server section which searched the print server section in which the suitable emulation for print data is carried, and created data, and the user specified according to the configuration according to claim 1 as explained above, a user can do directions of printing, without being conscious of in which printer the emulation to use is carried, and can aim at improvement in workability.

[0030] Moreover, according to the configuration according to claim 2, the print data which the compound emulation mixed are also received. Since each data can be compounded and outputted in the print server section which searched the print server section in which each emulation is carried, and created data in each searched print server section, and the user specified A user can do directions of printing, without being conscious of in which printer the emulation to use is carried, and the printing expression of the range large moreover is possible for him.

[0031] Since the suitable emulation for print data can be carried, and the stack amount of data can search little print server section and data can be made to make create and output in the searched print server section when there is still more stack amount of data of the specified print server section according to the configuration according to claim 3, an output can be obtained early.

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**TECHNICAL FIELD**

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[Industrial Application] This invention relates to the print server equipment with which two or more installation of the print servers, such as a compound machine which made the printer or the printer possess other functions on a network, was carried out.

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**PRIOR ART**

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[Description of the Prior Art] When two or more print server systems exist on a network conventionally, the user has usually advanced the printing demand to the printer, when the emulation which the printer which it is going to use carries has been recognized.

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] Since the print server equipment of this invention can be outputted in the print server section which searched the print server section in which the suitable emulation for print data is carried, and created data, and the user specified according to the configuration according to claim 1 as explained above, a user can do directions of printing, without being conscious of in which printer the emulation to use is carried, and can aim at improvement in workability.

[0030] Moreover, according to the configuration according to claim 2, the print data which the compound emulation mixed are also received. Since each data can be compounded and outputted in the print server section which searched the print server section in which each emulation is carried, and created data in each searched print server section, and the user specified A user can do directions of printing, without being conscious of in which printer the emulation to use is carried, and the printing expression of the range large moreover is possible for him.

[0031] Since the suitable emulation for print data can be carried, and the stack amount of data can search little print server section and data can be made to make create and output in the searched print server section when there is still more stack amount of data of the specified print server section according to the configuration according to claim 3, an output can be obtained early.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] However, in the above-mentioned Prior art, if the class of emulation increases and a network also reaches far and wide like today, it is difficult to recognize the printer on a network, and correspondence of the emulation which it carries one by one.

[0004] The purpose of this invention is to offer the print server equipment which enabled it to use the emulation which the print server carries on a network more effectively and more simply.

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**MEANS**

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[Means for Solving the Problem] In the print server equipment which this invention was connected to two or more host equipments through the network, and was equipped with the print server section of the plurality which can be shared from said host equipment, respectively in order to attain the above-mentioned purpose It judges whether the suitable emulation for print data is carried in the print server section to which print data are sent from said host equipment. When not carried, other print server sections which carry said suitable emulation are searched, and it is characterized by having the means made to output by the print server section to which data are made to create in the searched print server section, and said print data are sent.

[0006] Moreover, it judges whether each emulation is carried in the print server section to which the print data which two or more emulations mixed from host equipment are sent in above print server equipment. Other print server sections in which said each emulation is carried when not carried are searched. It is characterized by having the means to which data are made to make compound and output in the print server section to which data are made to create in each searched print server section, and said print data are sent.

[0007] When there is much amount of data by which the stack has already been carried out to the print server section to which print data are sent from host equipment in the print server equipment of further the above, other print server sections in which the suitable emulation for print data is carried are searched, and it is characterized by having the means to which data are made to make create and output in the searched print server section.

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## OPERATION

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[Function] When the suitable emulation for print data is not carried in the specified print server section according to the above-mentioned means, the print server section in which the suitable emulation is carried is searched, and data are made to create in the searched print server section. The created data are transmitted to said specified print server section, and are outputted in the specified print server section.

[0009] Moreover, when the print data which two or more emulations which are not carried in the specified print server section mixed are sent, the print server section in which each emulation is carried is searched, and data are made to create in two or more searched print server sections, respectively. Each created data is transmitted to said specified print server section, and compounds and outputs said each data in the specified print server section.

[0010] In the print server section furthermore specified, when there is much stack amount of data, the suitable emulation for print data is carried, and the stack amount of data searches little of other print server section, and the searched print server section creates and outputs data in response to print data.

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**EXAMPLE**

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[Example] Hereafter, the example of this invention is explained based on a drawing.

[0012] Drawing 1 is a print server structure-of-a-system Fig. which is one example of this invention, and the print server section 1 of plurality (four were shown by a diagram) is connected with the host equipment 10 of plurality (four were shown by a diagram), such as a workstation, in the communications control section 2 through the network 11.

[0013] In each print server section 1, the print data received in the communications control section 2 are once stored in a disk unit 5 in the main control section 3. When two or more print data are stored in the disk unit 5 possessing the disk for information record, the main control section 3 manages print data on a table so that it can read in the stored sequence. Moreover, the address of the host equipment which is the demand origin of print data, and user ID (identifier) are also stored in this managed table. moreover, print data are in what kind of conditions (under a waiting state and printing etc.) — it is managed on this managed table, and in order to manage the case where transmit print data to other print server sections 1, and they are processed further, and the case where processing is requested from other print server sections 1, and print data are received and processed, respectively, the address of the print server section 1 of the destination and an acceptance place is also stored.

[0014] An example of said managed table was shown in Table 1.

[0015]

[Table 1]

印字データの ポインタ	ホスト装置 アドレス	ユーザID	印字データの 状態フラグ	転送先システ ムアドレス	受け入れ先シス テムアドレス
P 1	A 1	U 1	S 1	T 1	R 1
P 2	A 2	U 2	S 2	T 2	R 2
P 3	A 3	U 3	S 3	T 3	R 3
⋮	⋮	⋮	⋮	⋮	⋮
P n	A n	U n	S n	T n	R n

[0016] It has the field which stores in said main control section 3 ID of the emulation which the printer section 6 in a system carries beforehand. [ the printer control section 4 ] Read [ the main control section 3 / the print data most previously stored among the print data in a disk unit 5 ], section [ printer / 6 ], it begins [ furthermore, / when the print data of a printing waiting state are in a disk unit 5 and the printer section 6 omits printing actuation ] to transmit these print data. And it waits for the completion of printing of these print data, and when there are print data which are in a waiting state next, these print data are read and a transfer is started to the printer section 6.

[0017] The printer control section 4 performs the communication link with the printer section 6,

and manages the transfer to the print data to the printer section 6, and the condition of the printer section 6. The printer section 6 is an airline printer which decodes print data and creates an image to a record medium (paper). This printer section 6 has the function to tell error situations, such as operating state, such as the completion of printing, or a form piece, a paper jam, and failure, to the printer control section 4, printer waiting and during printing. By this example, although this printer section 6 has become some print server systems, it does not contain in a print server system, but an independent configuration is also considered.

[0018] An example of the print data sent to Table 2 from host equipment 10 was shown.

[0019]

[Table 2]

プリントサーバー アドレス	ホスト装置 アドレス	印刷情報 ヘッダ	印刷情報	印刷情報 ヘッダ	印刷情報
------------------	---------------	-------------	------	-------------	------

[0020] Print data consist of the print server address, the host device address, a printed information header, and printed information in Table 2. In a printed information header, user ID and ID of the emulation which print data use are contained. For two or more users, such as a workstation, in the case of a machine available to coincidence, host equipment 10 of user ID is for specifying the user who advanced the printing demand within host equipment 10. Printed information is printing image information, such as text, bit image information, and graphics information. A printed information header and printed information are a pair, and print data may consist of two or more printed information headers and printed information (print data treat as a unit all the data to one printing demand which a user publishes).

[0021] Next, the example of operation in the above-mentioned print server system is explained.

[0022] In case print data are stored in a disk unit 5, the main control section 3 judges whether it is the emulation which the printer section 6 in the print server section 1 carries by the emulation ID in the printed information header of print data, and if it is, it will perform the usual processing. If it is not the corresponding emulation, the print server section 1 which has the corresponding emulation is searched through a network 11, and the address is stored. Print data are also transmitted through a network 11 and it memorizes that it is under processing in other print server sections 1 with the pointer of print data, and the status flag of print data.

[0023] On the other hand, in the print server section 1 which received print data, after describing the address of the print server section 1 of an acceptance place on the managed table of the print data of the main control section 3, print data are processed by the printer control section 4. Page information creates by the printer control section 4, and page information is transmitted and outputted to the print server section 1 of an acceptance place through a network 11 immediately after the end.

[0024] Moreover, as soon as page information is finished on each print server section 1 which carried the emulation which processes the main control section 3 by the approach of having divided for every emulation and having mentioned above which uses a series of print data, and corresponds to the print data which two or more emulations mixed, page information is linked in the main control section 3, and it transmits to the printer control section 4 of an acceptance place. This printer control section 4 compounds and outputs all page information.

[0025] Furthermore, if the managed table of print data judges another print data which should be processed by the print server section 1 to be the condition of stocking in large quantities in case print data are stored in a disk unit 5, immediately, through a network 11, the main control section 3 will search other print server sections 1 which do not stock print data in large quantities, and carry the suitable emulation for print data, will transmit print data, and will yield processing.

[0026] In this case, since it is outputted from the printer section other than the printer section which the user specified, a memorandum is issued through the host equipment with which, as for the main control section 3, the user is using this. An example of the message data sent to host equipment was shown in Table 3.

[0027]

[Table 3]

ホスト装置 アドレス	プリントサーバー アドレス	メッセージ情報 ヘッダ	メッセージデータ
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[0028] In addition, decision whether print data are stocked in large quantities can be determined in the amount of the print data memorized by the disk unit 5, or can consider determining with the number of the user who has requested processing etc.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the print server structure-of-a-system Fig. which is one example of this invention.

[Description of Notations]

1 — Print server section 2 — Communications control section 3 — Main control section 4 — Printer control section 5 — Disk unit 6 — Printer section 10 — Host equipment 11 — Network.

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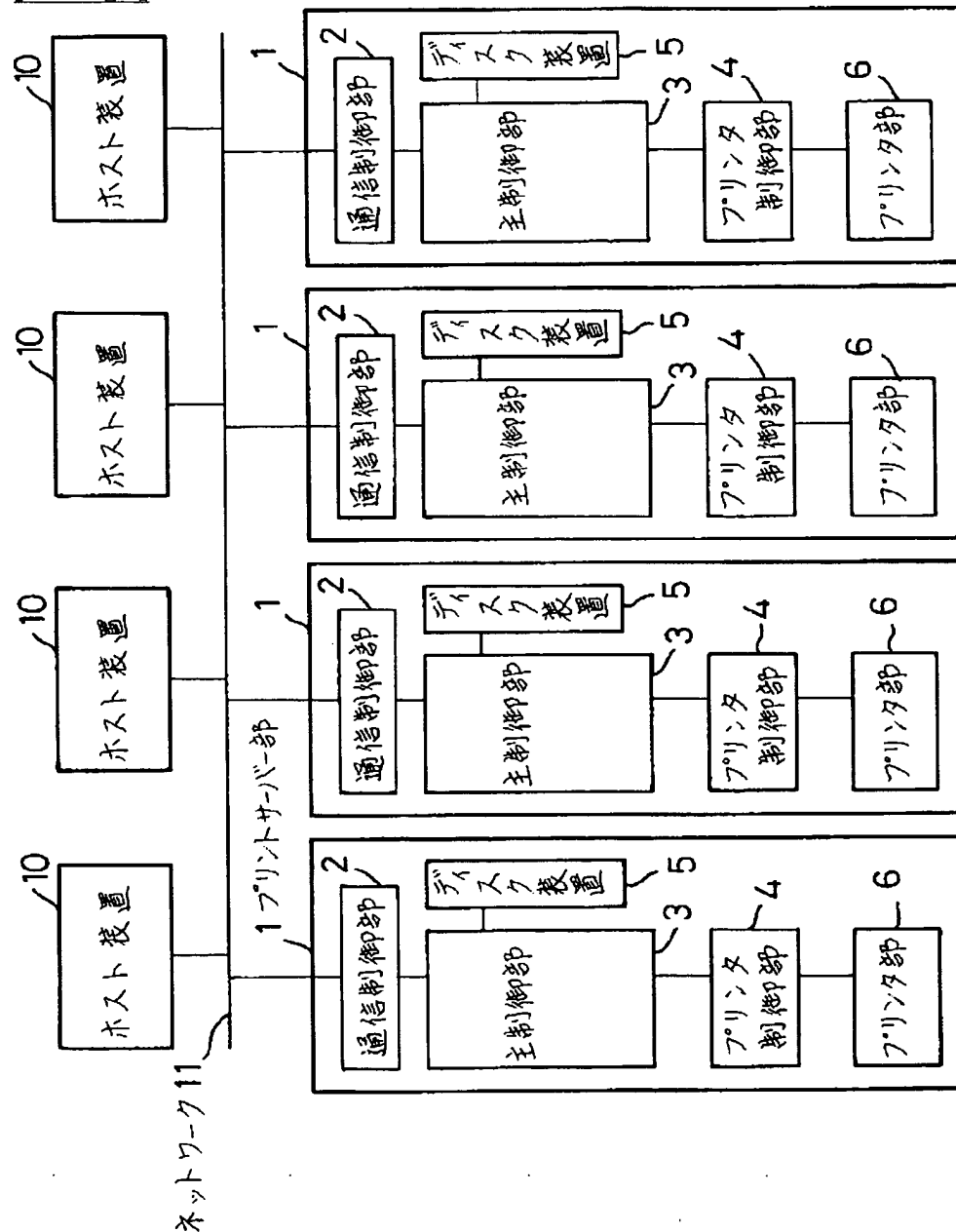
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DRAWINGS

[Drawing 1]



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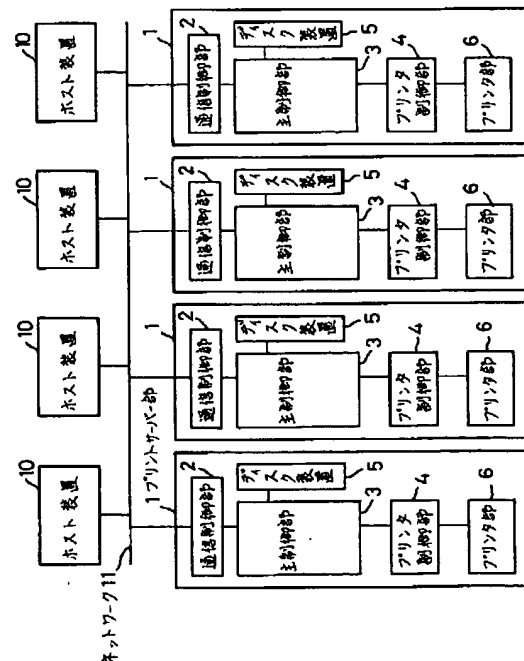
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(54)【発明の名称】 プリントサーバー装置

(57)【要約】

【目的】 ネットワーク上でプリントサーバーが搭載しているエミュレーションを、より有効にかつより簡単に使用できるようにする。

【構成】 ホスト装置10にネットワーク11を介して接続されている複数のプリントサーバー部1内の1つを指定して印刷データを送ると、主制御部3は、印刷データに適切なエミュレーションがそのプリントサーバー部1に搭載されているか否かを判断し、搭載されていないとネットワーク11を介して前記適当なエミュレーションを搭載している他のプリントサーバー部1を検索し、検索したプリントサーバー部1でデータを作成させる。この作成データを前記指定したプリントサーバー部1に転送して出力させる。



**【特許請求の範囲】**

【請求項1】 複数のホスト装置にネットワークを介して接続され、前記ホスト装置からの共用がそれぞれ可能な複数のプリントサーバー部を備えたプリントサーバー装置において、前記ホスト装置から印刷データが送られるプリントサーバー部に印刷データに適当なエミュレーションが搭載されているか否かを判断し、搭載されていない場合に前記適当なエミュレーションを搭載している他のプリントサーバー部を検索し、検索したプリントサーバー部でデータを作成させて前記印刷データが送られるプリントサーバー部によって出力させる手段を備えたことを特徴とするプリントサーバー装置。

【請求項2】 複数のホスト装置にネットワークを介して接続され、前記ホスト装置からの共用がそれぞれ可能な複数のプリントサーバー部を備えたプリントサーバー装置において、前記ホスト装置から複数のエミュレーションの混合した印刷データが送られるプリントサーバー部に各エミュレーションが搭載されているか否かを判断し、搭載されていない場合に前記各エミュレーションが搭載されている他のプリントサーバー部を検索し、検索した各プリントサーバー部でデータを作成させて前記印刷データが送られるプリントサーバー部でデータを合成させ、かつ出力させる手段を備えたことを特徴とするプリントサーバー装置。

【請求項3】 複数のホスト装置にネットワークを介して接続され、前記ホスト装置からの共用がそれぞれ可能な複数のプリントサーバー部を備えたプリントサーバー装置において、前記ホスト装置から印刷データが送られるプリントサーバー部に既にスタックされているデータ量が多い場合に、印刷データに適当なエミュレーションが搭載されている他のプリントサーバー部を検索し、検索したプリントサーバー部でデータを作成させ、かつ出力させる手段を備えたことを特徴とするプリントサーバー装置。

**【発明の詳細な説明】****【0001】**

【産業上の利用分野】 本発明は、ネットワーク上にプリンタあるいはプリンタに他の機能を具備させた複合機等のプリントサーバーが複数設置されたプリントサーバー装置に関する。

**【0002】**

【従来の技術】 従来、ネットワーク上に複数のプリントサーバーシステムが存在するとき、通常、ユーザは使用しようとしているプリンタが搭載しているエミュレーションを認識した上で、そのプリンタに対して印字要求を出している。

**【0003】**

【発明が解決しようとする課題】 しかし、上記の従来の技術では、今日のように、エミュレーションの種類が増え、またネットワークも広範囲に及ぶと、ネットワーク

上のプリンタと、それが搭載しているエミュレーションの対応をいちいち認識するのは困難である。

【0004】 本発明の目的は、ネットワーク上でプリントサーバーが搭載しているエミュレーションを、より有効に、かつより簡単に使用できるようにしたプリントサーバー装置を提供することにある。

**【0005】**

【課題を解決するための手段】 上記の目的を達成するため、本発明は、複数のホスト装置にネットワークを介して接続され、前記ホスト装置からの共用がそれぞれ可能な複数のプリントサーバー部を備えたプリントサーバー装置において、前記ホスト装置から印刷データが送られるプリントサーバー部に印刷データに適当なエミュレーションが搭載されているか否かを判断し、搭載されていない場合に前記適当なエミュレーションを搭載している他のプリントサーバー部を検索し、検索したプリントサーバー部でデータを作成させて前記印刷データが送られるプリントサーバー部によって出力させる手段を備えたことを特徴とする。

【0006】 また上記のプリントサーバー装置において、ホスト装置から複数のエミュレーションの混合した印刷データが送られるプリントサーバー部に各エミュレーションが搭載されているか否かを判断し、搭載されていない場合に前記各エミュレーションが搭載されている他のプリントサーバー部を検索し、検索した各プリントサーバー部でデータを作成させて前記印刷データが送られるプリントサーバー部でデータを合成させ、かつ出力させる手段を備えたことを特徴とする。

【0007】 さらに上記のプリントサーバー装置において、ホスト装置から印刷データが送られるプリントサーバー部に既にスタックされているデータ量が多い場合に、印刷データに適当なエミュレーションが搭載されている他のプリントサーバー部を検索し、検索したプリントサーバー部でデータを作成させ、かつ出力させる手段を備えたことを特徴とする。

**【0008】**

【作用】 上記の手段によれば、指定されたプリントサーバー部に印刷データに適当なエミュレーションが搭載されていない場合に、その適当なエミュレーションが搭載されているプリントサーバー部を検索し、検索されたプリントサーバー部でデータを作成させる。作成されたデータは前記指定されたプリントサーバー部に転送され、指定されたプリントサーバー部において出力される。

【0009】 また指定されたプリントサーバー部に搭載されていない複数のエミュレーションの混合した印刷データが送られた場合に、各エミュレーションが搭載されているプリントサーバー部を検索し、検索された複数のプリントサーバー部でそれぞれデータを作成させる。作成された各データは前記指定されたプリントサーバー部に転送され、指定されたプリントサーバー部で前記各デ

ータを合成して出力する。

【0010】さらに指定されたプリントサーバ部においてスタックデータ量が多い場合に、印刷データに適当なエミュレーションが搭載され、かつスタックデータ量が少ない他のプリントサーバ部を検索し、検索されたプリントサーバ部が、印刷データを受けてデータを作成し、かつ出力する。

【0011】

【実施例】以下、本発明の実施例を図面に基いて説明する。

【0012】図1は本発明の一実施例であるプリントサーバシステムの構成図であり、複数(図では4つを示した)のプリントサーバ部1が、ワークステーションなどの複数(図では4つを示した)のホスト装置10とネットワーク11を介して通信制御部2で接続されている。

【0013】各プリントサーバ部1において、通信制御部2で受け取った印刷データは、主制御部3でディス

ク装置5に一旦格納される。主制御部3は、複数の印刷データが情報記録用ディスクを具備したディスク装置5に格納されている場合に、格納した順番で読み出しを行えるように、印刷データをテーブルで管理する。また、この管理テーブルには、印刷データの要求元であるホスト装置のアドレス、ユーザID(識別子)も格納する。また印刷データがどのような状態(待ち状態、印刷中など)であるのかもこの管理テーブルで管理され、さらに印刷データを他のプリントサーバ部1へ転送し処理する場合と、他のプリントサーバ部1から処理を依頼されて印刷データを受け入れ処理する場合をそれぞれ管理するために、転送先と受け入れ先のプリントサーバ部1のアドレスも格納する。

【0014】表1に前記管理テーブルの一例を示した。

【0015】

【表1】

印字データのポインタ	ホスト装置アドレス	ユーザID	印字データの 状態フラグ	転送先システム アドレス	受け入れ先システム アドレス
P1	A1	U1	S1	T1	R1
P2	A2	U2	S2	T2	R2
P3	A3	U3	S3	T3	R3
⋮	⋮	⋮	⋮	⋮	⋮
Pn	An	Un	Sn	Tn	Rn

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【0016】前記主制御部3には、予めシステム内のプリンタ部6が搭載するエミュレーションのIDを格納する領域を有する。さらに主制御部3は、ディスク装置5内に印刷待ち状態の印刷データがあり、プリンタ部6が印刷動作を行っていない場合に、ディスク装置5内の印刷データのうち最も先に格納された印刷データを読み出し、プリンタ制御部4を経由してプリンタ部6にこの印刷データの転送を始める。そして、この印刷データの印刷完了を待って、次に待ち状態にある印刷データがある場合は、この印刷データを読み出しプリンタ部6へ転送を開始する。

【0017】プリンタ制御部4はプリンタ部6との通信を行い、プリンタ部6への印刷データへの転送およびプ

リント部6の状態を管理する。プリンタ部6は、印刷データを解読し、記録媒体(紙)に画像を作成する印刷装置である。このプリンタ部6は、プリンタ待機中、印刷中、印刷完了などの動作状態、あるいは用紙切れ、紙づまり、故障などのエラー状態をプリンタ制御部4へ知らせる機能を持つ。本実施例では、このプリンタ部6がプリントサーバシステムの一部になっているが、プリントサーバシステムに含まず、独立している構成も考えられる。

【0018】表2にホスト装置10から送られてくる印刷データの一例を示した。

【0019】

【表2】

プリントサーバ アドレス	ホスト装置 アドレス	印刷情報 ヘッダ	印刷情報	印刷情報 ヘッダ	印刷情報
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【0020】表2において印刷データは、プリントサーバアドレス、ホスト装置アドレス、印刷情報ヘッダおよび印刷情報からなっている。印刷情報ヘッダの中に

は、ユーザID、および印刷データが使用するエミュレーションのIDが含まれる。ユーザIDは、ホスト装置10がワークステーションなどの複数のユーザが同時に利

用可能なマシンの場合、ホスト装置10内で印刷要求を出したユーザを特定するためのものである。印刷情報は、文字情報、ビットイメージ情報、グラフィックス情報などの印刷画像情報である。印刷情報ヘッダと印刷情報は対になっており、印刷データは複数の印刷情報ヘッダと印刷情報からなる場合もある(印刷データはユーザが発行する一回の印刷要求に対する全データを単位として扱う)。

【0021】次に上記のプリントサーバシステムにおける動作例を説明する。

【0022】主制御部3は、ディスク装置5に印刷データを格納する際、印刷データの印刷情報ヘッダ内のエミュレーションIDにより、そのプリントサーバ部1内のプリンタ部6が搭載するエミュレーションであるか否かを判断し、あれば通常の処理を行う。該当するエミュレーションでなければネットワーク11を介し、該当するエミュレーションを有するプリントサーバ部1を検索し、そのアドレスを格納する。印刷データもネットワーク11を介して転送し、印刷データのポインタおよび印刷データの状態フラグにより、他のプリントサーバ部1

で処理中であることを記憶する。  
【0023】一方、印刷データを受け入れたプリントサーバ部1では、受け入れ先のプリントサーバ部1のアドレスを主制御部3の印刷データの管理テーブルに記述した上で、プリンタ制御部4により印刷データを処理する。プリンタ制御部4にてページ情報が作成し終わり

ホスト装置 アドレス	プリントサーバ アドレス	メッセージ情報 ヘッダ	メッセージデータ
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【0028】なお、印刷データが大量にストックされているか否かの判断は、ディスク装置5に記憶されている印刷データの量で決定したり、処理を依頼しているユーザの個数で決定する、などが考えられる。

【0029】

【発明の効果】以上説明したように、本発明のプリントサーバ装置は、請求項1記載の構成によれば、印刷データに適切なエミュレーションが搭載されているプリントサーバ部を検索してデータを作成し、ユーザの指定したプリントサーバ部で出力できるので、ユーザは使用したいエミュレーションがどのプリンタに搭載されているか否かを意識することなく印刷の指示ができ、作業性の向上が図れる。

【0030】また請求項2記載の構成によれば、複合のエミュレーションが混合した印刷データに対しても、各エミュレーションが搭載されているプリントサーバ部を検索して、検索された各プリントサーバ部でデータを作成し、ユーザの指定したプリントサーバ部でデータを合成して出力できるので、ユーザは使用したいエ

次第、ネットワーク11を介し、受け入れ先のプリントサーバ部1にページ情報を転送し、出力する。

【0024】また複数のエミュレーションが混合した印刷データに対しては、主制御部3は、一連の印刷データを使用するエミュレーションごとに分割し、上述した方法で処理し、該当するエミュレーションを搭載した各プリントサーバ部1上でページ情報が仕上がり次第、主制御部3でページ情報をリンクし、受け入れ先のプリンタ制御部4へ転送する。このプリンタ制御部4は、すべてのページ情報を合成し、出力する。

【0025】さらに主制御部3は、ディスク装置5に印刷データを格納する際、印刷データの管理テーブルが、そのプリントサーバ部1により処理されるべき別の印刷データを大量にストックしている状態と判断したら、直ちにネットワーク11を介して、印刷データを大量にストックしておらずかつ印刷データに適切なエミュレーションを搭載している他のプリントサーバ部1を検索し、印刷データを転送して処理を譲る。

【0026】この場合、ユーザの指定したプリンタ部とは別のプリンタ部から出力されるので、このことを主制御部3はユーザが使用しているホスト装置を介して通達する。表3にホスト装置へ送るメッセージデータの一例を示した。

【0027】

【表3】

ミュレーションがどのプリンタに搭載されているか否かを意識することなく印刷の指示ができ、しかも広い範囲の印刷表現が可能である。

【0031】さらに請求項3記載の構成によれば、指定されたプリントサーバ部のスタックデータ量が多い場合には、印刷データに適切なエミュレーションが搭載されかつスタックデータ量が少ないプリントサーバ部を検索して、検索されたプリントサーバ部でデータを作成させかつ出力させることができるので、出力結果を早く得ることができる。

【図面の簡単な説明】

【図1】本発明の一実施例であるプリントサーバシステムの構成図である。

【符号の説明】

1…プリントサーバ部、 2…通信制御部、 3…主制御部、 4…プリンタ制御部、 5…ディスク装置、 6…プリンタ部、 10…ホスト装置、 11…ネットワーク。

【図1】

